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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,870	10/19/2001	Robert Boesnecker	32860-000181	8899

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O.BOX 8910
RESTON, VA 20195

EXAMINER	
FAULK, DEVONA E	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,870	BOESNECKER, ROBERT	
	Examiner	Art Unit	
	Devona E. Faulk	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The applicant filed a Pre-Appeal Brief request on 6/22/2006 and based on the review, the examiner agrees with the applicant regarding motivation to combine the secondary reference Makivirta with primary reference Azima and is withdrawing the finality of the last office action. The examiner has determined that the order of the references should have been switched, i.e. , secondary reference Makivirta should have been the primary reference and Azima the secondary reference.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 4** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 recites " a flat surface loudspeaker comprising a filter device for the sound signals". The specification and figures do not disclose the filter as part of the loudspeaker but actually separate from the speaker.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-6,8,10 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Makivirta et al. (EP 0567 061) in view of Azima et al. (US Patent 6,198,831).

Regarding **claim 1**, Makivirta discloses a method for operation of a loudspeaker, comprising:

measuring the acoustic frequency response of the loudspeaker (64, filter/correlator, column 5, lines 25-26).

determining a frequency curve based on the measured acoustic frequency response (4, wideband filter, column 5,lines 16-);

determining an inverse frequency curve to the frequency curve (column 1, lines 50-55; column 5, lines 16-26);

simulating the inverse frequency curve in a filter device as a transfer function of the filter device (column 5, lines 16-26);

and in an operating mode, compensating for the frequency response of the loudspeaker by the filter device, which is connected between the sound source and the loudspeaker based upon the transfer function (Figure 2B; column 3,lines 15-24)).

Makivirta discloses that the speaker is a one-way loudspeaker but fails to disclose that the loudspeaker is a flat panel loudspeaker.

Azima discloses a one-way loudspeaker, a flat-panel loudspeaker, in which at least one oscillating coil (9 transducer) is mounted on a surface in the form of a plate (sound radiating panel) having predetermined characteristics (Figure 3, obvious that the plate has some predetermined characteristics), comprising: stimulating at least one coil to oscillate electrically by a sound source (column 5, lines 15-17) and emitting sound by the surface stimulat4ed to oscillate mechanically by the oscillating coil.

It would have been obvious to modify Makivirta's method of correcting by using using a flat panel loudspeaker as the one-way loudspeaker in order to Azima to produce a more superior output over that of a conventional speaker (Azima, column 4, lines 61-62).

Regarding **claim 4**, Makivirta discloses a loudspeaker and a filter device for the sound signals, connected upstream of the at least one oscillation coil, wherein a transfer function of the filter device is the inverse of a frequency response of the loudspeaker ((column 5, lines 16-26; Figure 2B; column 3,lines 15-24)).

Makivirta discloses that the speaker is a one-way loudspeaker but fails to disclose that the loudspeaker is a flat panel loudspeaker.

Azima discloses a one-way loudspeaker, a flat-panel loudspeaker, in which at least one oscillating coil (9 transducer) is mounted on a surface in the form of a plate (sound radiating panel) having predetermined characteristics (Figure 3, obvious that the plate has some predetermined characteristics), comprising: stimulating at least one coil to oscillate electrically by a sound source (column 5, lines 15-17) and emitting sound by the surface stimulat4ed to oscillate mechanically by the oscillating coil.

It would have been obvious to modify Makivirta's method of correcting by using using a flat panel loudspeaker as the one-way loudspeaker in order to Azima to produce a more superior output over that of a conventional speaker (Azima, column 4, lines 61-62).

Regarding **claims 2 and 5**, Makivirta as modified by Azima discloses wherein the transfer function of the filter device is stimulated by digital filters and wherein the filter device is in the form of a digital filter. Makivirta's apparatus is to be implemented with FIR filter (column 4, lines 50-53). Azima teaches of a filter/correlator.This implies that any filter processing that is done is digital. Thus it would have been obvious to one of ordinary skill in the art to have the transfer function simulated by digital filters for the benefit of providing better equalization and providing an output signal with less distortion.

Regarding claim 3, Makivirta as modified by Azima discloses wherein the transfer function is formed by FIR (finite impulse response) filters, whose filter coefficients are derived from the inverse frequency curve (Makivirta, column 5, lines 20-25). It is implicit that the coefficients are derived as claimed. All elements of claim 3 are comprehended by the rejection of claim 2.

Regarding **claim 4**,

All elements of **claim 6** are comprehended by the rejection of claim 5.

Regarding **claims 8 and 10**, Makivirta as modified by Azima discloses a filter that is equipped with a digital signal processor (Makivirta, column 5, lines 15-25, filter 4). All

elements of claims 8 and 10 are comprehended by the rejection of claims 6 and 6 respectively.

5. **Claims 7,9,11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Makivirta et al. (EP 0567 061) as applied to claim 4 above and Azima et al. (US Patent 6,198,831) as applied to claim 4 above in view of Smith (GB 2 265 519 A).

Regarding **claims 7 and 9**, Makivirta as modified by Azima fails to disclose that the filter device includes a sample and hold element connected via an analogue-to-digital converter to the digital filter, whose output is connected to a digital-to-analogue converter. Smith teaches of compensating for the non-linear responses of a flat panel loudspeaker including a D/A and an A/D converter connected to a filtering means (digital format converter, Figure 5), a re-linearising device (Figures 5 and 6) and a memory (sample and hold element) connected as claimed (page 4, lines 8—19). It would have bee obvious to modify Makivirta as modified by having the filter include a sample and hold element in order to re-scale the input signal in order to a displacement which is proportional to the input signal.

Regarding **claims 11 and 12**, Makivirta as modified by Azima discloses a filter that is equipped with a digital signal processor (Makivirta, column 5, lines 15-25, filter 4). All elements of claims 11 and 12 are comprehended by the rejection of claims 7 and 9 respectively.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848.

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615.The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEF

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600